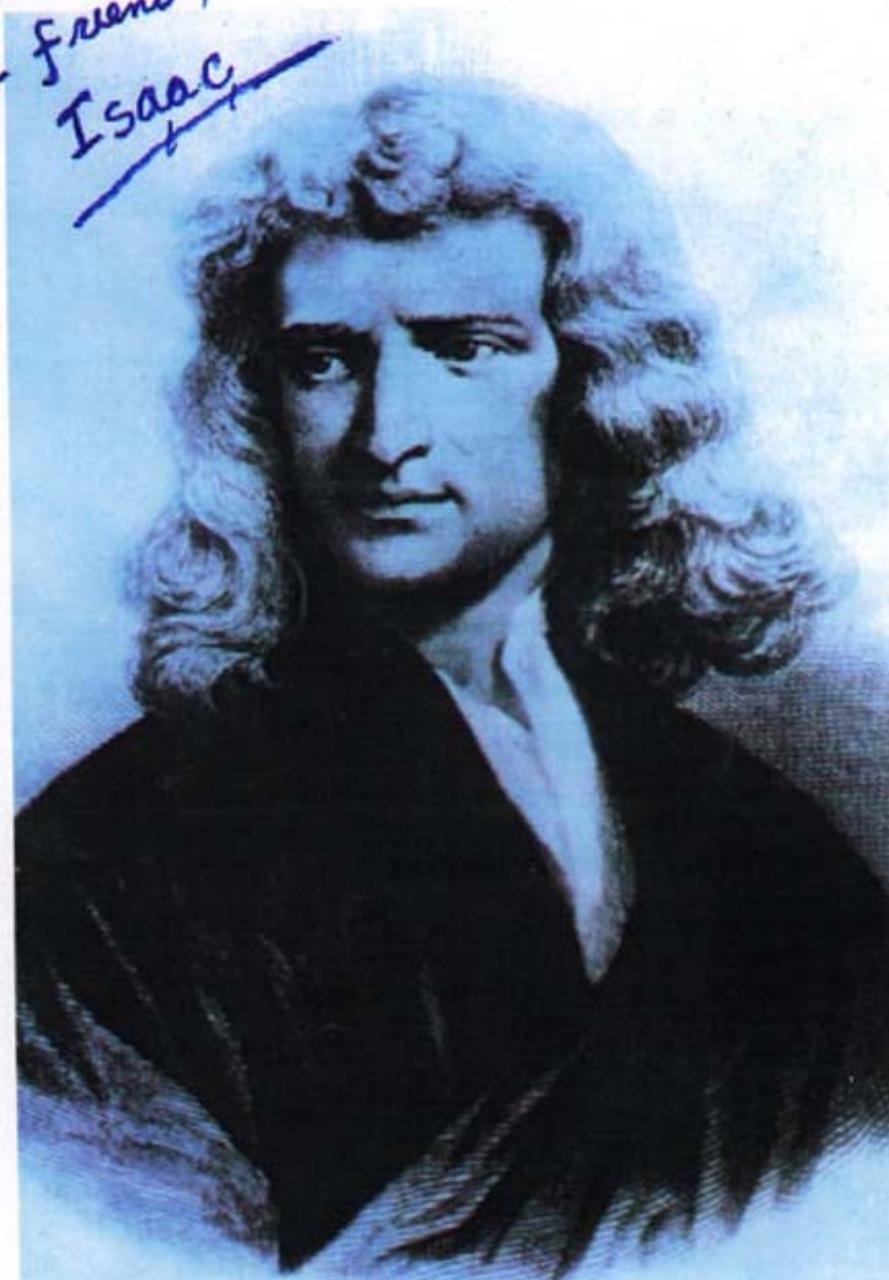


To Rocky,
Best wishes,
your friend,
Isaac



Models

Lecture 4

Isaac Newton
1642-1727

*Philosophiæ
Naturalis
Principia
Mathematica*

(1687)

DIALOGO

DI

GALILEO GALILEI LINCEO

MATEMATICO SOPRAORDINARIO

DELLO STUDIO DI PISA.

E Filosofo, e Matematico primario del

SERENISSIMO

GR.DVCA DI TOSCANA.

Doue ne i congressi di quattro giornate si discorre
sopra i due

MASSIMI SISTEMI DEL MONDO
TOLEMAICO, E COPERNICANO.

*Proponehdo indetèrminatamente le ragioni Filosofiche, et Naturali
santo per l'una, quanto per l'altra parte.*

CON PRI



VILEGI.

IN FIRENZA, Per Gio:Batista Landini MDCXXXII.

CON LICENZA DE' SUPERIORI.

Imprimatur si videbatur Reuerendiss. P. Magistro Sacri
Palatij Apostolici.
A. Episcopus Bellicastensis Vicesgerens.

Imprimatur
Fr. Nicolaus Riccardius
Sacri Palatij Apostolici Magister.

*Imprimatur Florentia ordinibus consuetis seruatis.
21. Septembris 1630.
Petrus Nicolinus Vic. Gener. Florentia.*

*Imprimatur die 21. Septembris 1630.
Fr. Clemens Egidius Inqu. Gener. Florentia.*

*Stampato adì 12. di Settembre 1630.
Niccolo dell'Altella.*



The Trial of Galileo, Robert Fleury, Musée du Louvre



St. Roberto Cardinal Bellarmine
1542-1621
canonized 1930



René Descartes

(1596 - 1650)

*DISOURCE ON THE
METHOD OF RIGHTLY
CONDUCTING THE
REASON, AND SEEKING
TRUTH IN THE SCIENCES
(Discours de la méthode
pour bien conduire sa
raison, et chercher la verité
dans les sciences)*

1637

“COGITO ERGO SUM”



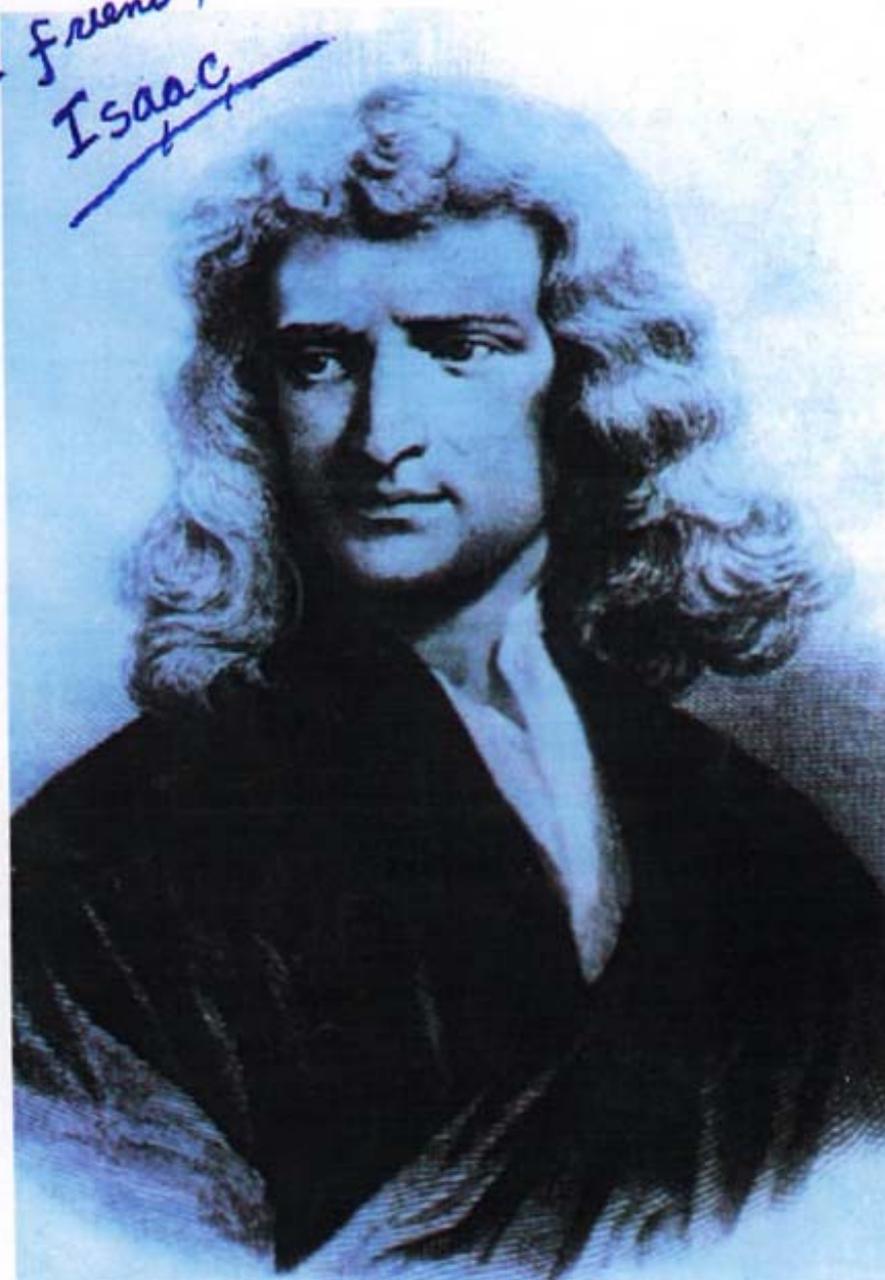
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Museo di Storia della Scienza



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To Rocky,
Best wishes,
your friend,
Isaac



Isaac Newton

1642-1727

*Philosophiæ
Naturalis
Principia
Mathematica*

(1687)

- 1. Astronomers were doing more than “saving the appearances.”**
- 2. The same laws of physics operate on Earth as in the heavens.**
- 3. The heavens are comprehensible by humans.**
- 4. Crystalline spheres, mechanical gears, and other sundry devices were replaced with a simple mathematical force law.**
- 5. The physics of Aristotle and the astronomy of Ptolemy were relegated to the dust bin.**

PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA.

Autore *J. S. NEWTON*, *Trin. Coll. Cantab. Soc. Matheseos*
Professore Lucasiano, & Societatis Regalis Sodali.

IMPRIMATUR.
S. P E P Y S, *Reg. Soc. PRÆSES.*
Julii 5. 1686.

L O N D I N I,

Jussu Societatis Regiæ ac Typis Josephi Streater. Prostat apud
plures Bibliopolas. Anno MDCLXXXVII.



Thomas Jefferson
1743-1826

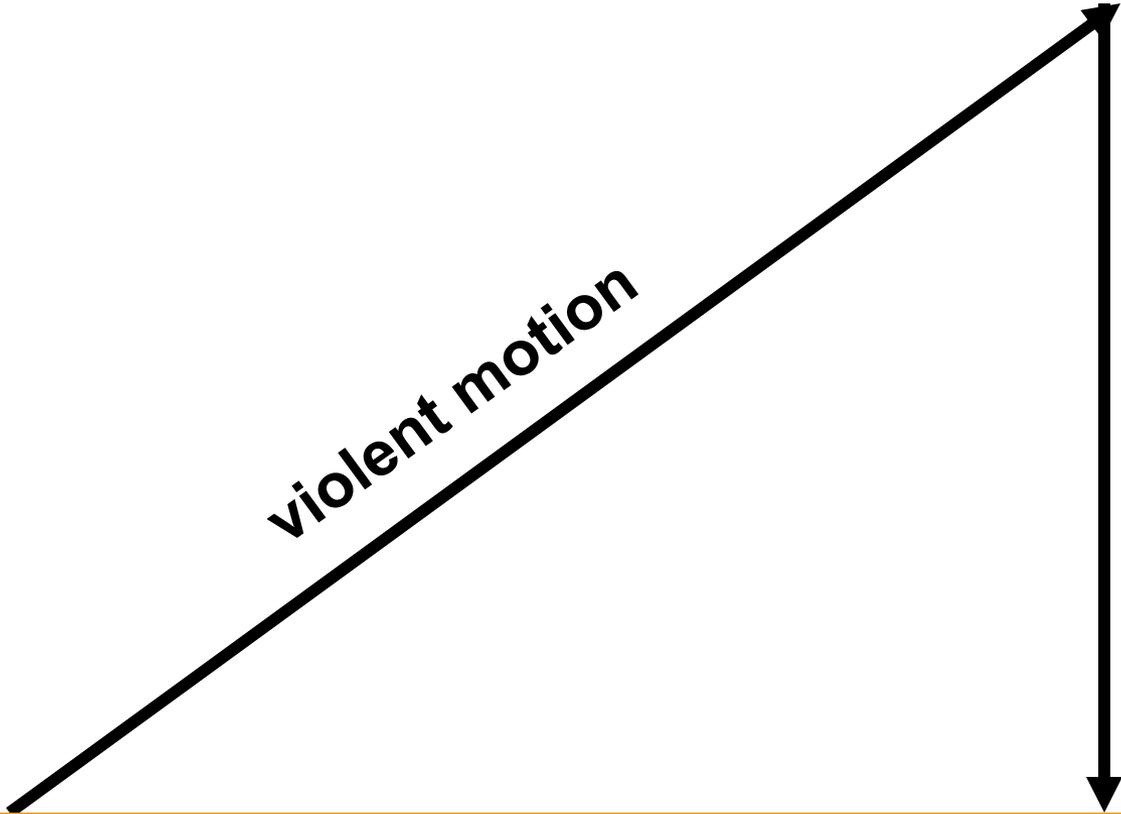
Why did the revolution occur; was it inevitable?

Why did it occur in Western Europe?

Why did it occur when it did?

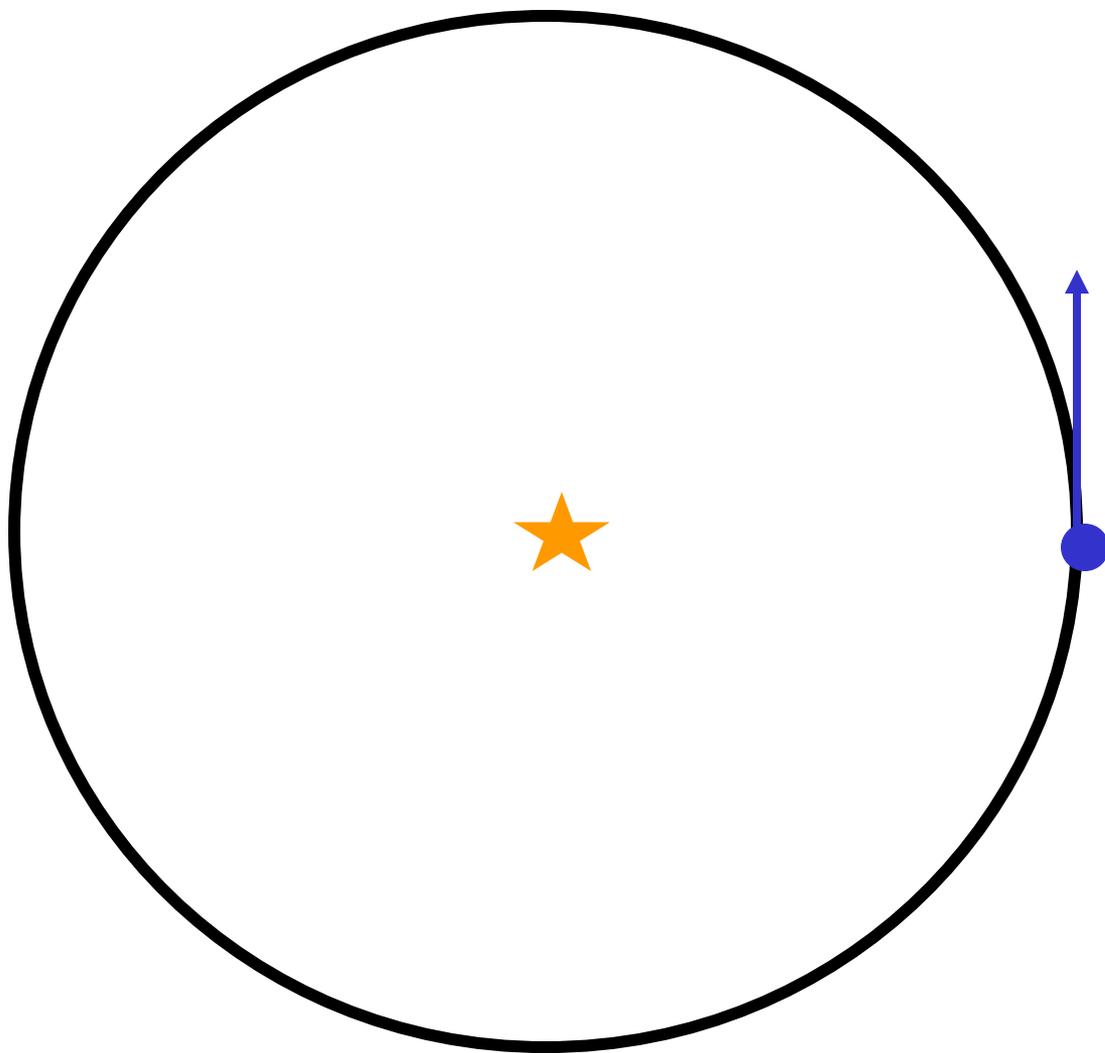
How would it have played out without Copernicus, Tycho, Kepler, Galileo, or Newton?

Will we ever develop a better way to do science?



violent motion

natural motion



in absence of a force, planet would

- 1. slow to a stop?**
- 2. continue to orbit?**
- 3. fly off in a straight line?**